ABSTRACT

A protection apparatus for a semiconductor device includes a DC power source, a load, a semiconductor device arranged between the DC power source and the load and switches the load between a driving state and a stopping state, a comparator comparing a voltage drop across the semiconductor device with a predetermined reference voltage, and a cut off unit cutting a conduction of the semiconductor device between the DC power source and the load when the voltage drop is greater than the predetermined reference voltage. A constant of the circuit element is set so that the reference voltage is not greater than a critical voltage. The critical voltage is a product of the on-resistance of the semiconductor device when its channel temperature is at an upper limit of the permissible temperature, and a minimum current value which causes the channel temperature to reach the upper limit of the permissible temperature by the self-heating due to Joule heat.